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Exhibit B

Declaration of Mark Flynn, State Library of Florida

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	CC Docket No. 02-6
Schools and Libraries Universal Service Support Mechanism	)	

DECLARATION OF MARK FLYNN
IN SUPPORT OF THE COMMENTS OF
THE AMERICAN LIBRARY ASSOCIATION

I. Mark Flynn, declare as follows:

1. I submit this Declaration in support of the Comments of the American Library Association. I am fully competent to testify to the facts set forth herein, and if called as witness, would testify to them.

2. I am a Library Program Specialist in Automation & Resource Sharing Programs for the State Library of Florida. As part of my duties, I provide consulting services to public libraries to evaluate technology and telecommunications options, supply technology and automation planning, and effectively integrate technology into the full range of public library services and programs. In addition, I coordinate the E-Rate program for Florida public libraries, am responsible for managing state licensing of commercial databases, and assist in the administration of the Federal and state grant programs. I have a Bachelor of Arts degree from Spring Hill College, a Masters of Library Sciences from the University of Alabama, a Masters of Archives Administration and Records Management from the University of New Orleans, and an Ed.S in Library Science from the University of Alabama.

3. My declaration is designed to explain some of the innovative technology that libraries are using in the State of Florida. Technology is essential to the modern library. Libraries are investing valuable resources to ensure that they can provide their constituents with the advanced technology that library patrons are now expecting.

4. For example, there is a growing expectation from patrons that Internet access is ubiquitous and mobile. The NTIA and the Economics and Statistics Administration have recently released a report entitled *A Nation Online: How Americans Are Expanding Their Use Of The Internet.* The report's findings are interesting: "that a growing number of people connect from multiple locations could indicate that the Internet is increasingly viewed as a basic communication and information tool, closer in nature to the telephone than the desktop computer" *Id.* at 31. The capability to provide ubiquitous Internet access is an emerging innovative trend in Florida public libraries. Many of Florida's public library systems are seeking to extend the effectiveness and reach of their Internet based information services by using wireless technology.

5. Already, Florida public libraries are using wireless technology to create local area networks within a library service outlet. For example, a library branch in Nassau County is using such a LAN that can support up to 253 laptops. This allows the library to use laptop computers, which require less space and can be readily adapted to the computing needs and style of library patrons within the building. This also provides the public library with a way to address the extensive space requirements of using traditional PC workstations connected by a wire to serve the public. The typical PC workstation connected with a wire requires an average of 35 square feet of space to create a public computing workspace for a single workstation. Many libraries in Florida are unable to afford the capital investment in brick and mortar to meet the demand for publicly accessible Internet workstations. Using wireless networking capability and laptops is an innovative way of extending access. Also, there is a trend for Florida public libraries to allow users to bring their own laptops into the building and connect into the wireless network. Florida libraries are also using wireless capability to create mobile computer labs that can be quickly setup in a community center to provide on demand computer training classes at community centers serving low income households.

6. Another way to use wireless to extend the reach of the library's network in serving a community is through the use of a new wireless technology called Wi-Fi and based on an IEEE Standand 802.11 Wi-Fi is a wireless network that offers high-speed Internet connections to anyone within range of the transmitter and allows users to perform the same tasks that one might engage in plugged into the

Internet from home or the office. Checking email, accessing databases, doing research, seeking homework help through chat relay, listening to music or streaming radio becomes possible while sitting anywhere within the canopy area. The City of Tallahassee, in conjunction with local broadband providers, has recently started a pilot project using Wi-Fi, called The Digital Canopy. This network consists of a grid of wireless antennas that allows people throughout a fourteen-block area to wirelessly access the Internet. The Leon County Public Library would like to incorporate this system into its information systems. Alachua County Public Libraries have also expressed an interest in a Digital Canopy. The network is fast, up to 6 mb per second (high speed home access networks have between .5 and 1.5 mbps) and allows you to do anything you would normally be able to do when connected to the Internet. You can use a laptop or a PDA equipped with a wireless card to connect. In Florida, 60% of library outlets serve communities affected by poverty levels of 10% or higher within a two mile radius of the service outlet. With additional Wi-Fi transmitters, a coverage area could be a one or two mile radius around a library service outlet. Having the ability to extend wireless LAN capabilities using the concept of a Digital Canopy is a logical next step in providing service, and would provide an innovative tool in serving communities affected by poverty. If this capability were eligible for E-rate support, more public libraries in Florida would be seeking to use innovative technology such as wireless to better serve low income communities.

7. Rural areas that are not served by broadband technologies such as DSL, cable modems, or Frame-relay, can also benefit from wireless technology extending the reach of a library network. One example of this is in St. Johns County, Florida, which is seeking to establish special homework assistance computer labs in high poverty areas that are not served by advanced telecommunication services. The most cost-effective way to serve these areas is through the establishment of a wireless bridge connecting the service area to the library's Internet connection. Having access to broadband enables a tangible improvement in library service for rural communities.

8. Another innovation that wireless broadband can enable is the development of a virtual online reference service available to rural residents from remote locations seven days a week. Currently, there are 19 rural counties in Florida that cannot afford to offer access to a reference librarian throughout the day. With the use of broadband technologies, these rural libraries can access a "virtual reference service" hosted by the State Library in collaboration with other public libraries throughout the state, providing service to rural patrons comparable to what library services in urban areas are able to provide. Virtual Reference is a service employing "real-time" chat relay. Using virtual reference, a librarian can help library patrons navigate through an array of WEB based research source material

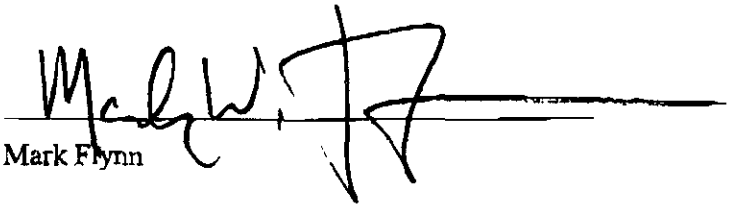
available to them via the Internet. A reference librarian can show a patron how to use a particular database, how to judge the relevance of information available on the WEB, and how to evaluate information provided by a WEB site. Librarians can co-browse the WEB with users, showing them where to click, what to type and how to evaluate the resources once they are found. Once the user has found the information needed, the librarian can send a transcript of the live virtual reference session to their email address so that the user has a copy of the relevant points that were discussed.

9. Real time virtual reference has matured into a viable way of offering online reference service. Interactive chat based services have one of the quickest and highest acceptance rates of any online assistance. They are personal, immediate and effective. Library patrons can ask for what they want, clarify their question in a traditional reference interview and receive real-time customized response. The librarian has the ability to "push" WEB pages to the end user or couple browsers so patrons can see the search and observe how a professional librarian would handle the query. This service is handled completely in the Web session, without disconnecting from the Internet.

10. However, broadband telecommunications services are a necessary component to make this kind of remote library service effective. The E-Rate program should help ensure that broadband services, however they can be obtained, are eligible for discount. The Commission's NPRM proposal of including wireless as an eligible service is one way of achieving this goal. Wireless can bring broadband to rural and isolated areas that often cannot receive broadband via wireline telecommunications providers. By including wireless services, the E-Rate program can help ensure that underserved communities receive the necessary telecommunication components to bring important tools like virtual reference to libraries serving these communities.

Verification

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief, and that this declaration was executed on April 5, 2002, in Tallahassee, FL.



Mark Flynn

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Exhibit C

Declaration of Patricia Wallace, Enoch Pratt Free Library/State Library Resource Center, Baltimore, Maryland

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	CC Docket No. 02-6
Schools and Libraries Universal Service Support Mechanism	)	

DECLARATION OF PATRICIA WALLACE
IN SUPPORT OF THE COMMENTS OF
THE AMERICAN LIBRARY ASSOCIATION

I, Patricia Wallace, declare as follows:

1. I submit this Declaration in support of the Comments of the American Library Association. I am fully competent to testify to the facts set forth herein, and if called as witness, would testify to them.

2. I am the Assistant Director of the Enoch Pratt Free Library/State Library Resource Center in Baltimore, Maryland. I have served in this capacity since March 2001. From 1994-2001, I served at the Chief of the Information Access Division for the Library. As part of my duties, I am responsible for filing the Library's E-Rate applications. In addition to my administrative responsibilities for the Pratt Library as the public library for Baltimore City, I am also an ex officio member of the Governance Board for Sailor, Maryland's Public Information Network. The staff in the organizational units that report to me include not only librarians but the engineering and technical staff who manage the statewide network, Sailor, and our citywide branch network infrastructure. I have served on the Maryland State Governor's Commission on High Speed Networking and am currently on the Board of Directors for Net.Work.Maryland. I have published articles in the area of technology training for library staff. I have a Bachelor of Science degree from Towson University and a Masters in Library Science from the University of Maryland.

3. Sailor is an Internet-based network and web portal serving all 23 Maryland counties and the City of Baltimore. Tracing its beginnings to 1990, the Sailor Project is the ongoing endeavor of the Maryland Public Library (MPL) community to provide equity in access and to facilitate access to information in electronic formats for the residents of the State of Maryland, without limitation of time of access, location of access point, or fee for access. Many Maryland public school systems connect to the Sailor network as their onramp to the Internet. The vision of Sailor is to enable and guide Maryland residents' access to electronic information and services from anywhere, at anytime, at no charge and to develop and implement shared applications and resources across the state. Sailor performs many tasks. It provides dial-up access to the Internet to any resident with a PC and a modem anywhere in Maryland, an intranet backbone for transport, an internet gateway, a networked interlibrary loan and virtual catalog application called Marina, and the Sailor Web Site provides rich content about Maryland. In addition, the program supplies Maryland libraries with consortium level purchases of commercial databases, and web site hosting for state and local government agencies and schools. Last year, Sailor received over 200,000,000 hits to its web-based resources.

4. Sailor strives to continue to provide next generation broadband services so that equitable access can be maintained across the entire state leaving no jurisdiction behind. The network staff continues to actively explore access solutions with telecommunications companies doing business in the state. The State Library is doing what it can to provide broadband services to all areas. This is a particularly challenging task for the underserved and underprovisioned corners of the state. We currently maintain a transport backbone and a front-end network in the State. Libraries can receive broadband support by connecting to our point of presence in areas where we have been able to find telecommunications companies serving the area. These tend to be the most populated areas of Maryland like Baltimore City or Annapolis. Yet, we are finding that there are pockets within the State where the telecommunications industry has yet to extend advanced telecommunications capabilities. Libraries in these region are limited to dial-up modem connections and T1 bundles of service.

5. In Allegany and Garrett Counties we have been unable to find wireline facilities to support advanced telecommunications. Due to the geography of the area, and smaller populations, the wireline providers in these areas do not currently have business plans to provide advanced high speed and broadband services. Libraries in these regions have asked wireline providers to consider installing the necessary facilities to connect to the closest broadband connection. Unfortunately, such a connection can be so costly as to be prohibitive. Any provision of such wireline services is mileage sensitive, and carries large intrastate or intraLATA costs and possibly interstate fees. As such, obtaining

advanced telecommunications via wireline telecommunications is not an option to these communities. Similar situations exist in some of the rural farming communities on the Eastern Shore of Maryland where the population is not dense, where telecommunications facilities are very basic and even cable operators are not present. The students and library customers in these communities have identical needs for access and information services as those in the more densely populated areas of Maryland. Although they do not have the population that enables companies to develop a viable business plan to extend broadband services, they do have a natural resource that can work to their betterment. This is their flat terrain and a series of towers. If wireless technology were an eligible discountable entity and they could acquire equipment themselves or services from an enterprising company at discount, they could take their place in the broadband arena.

6. Sailor would like to ensure that all library constituents could use advanced telecommunication services and keep pace with increasingly critical electronic information services. Currently, the best option for these underserved communities is wireless. By adding wireless services as eligible for E-Rate funding, libraries in the mountainous western region of Maryland or the rural Eastern Shore will be able to receive broadband services. These areas of the state currently have wireless towers. But the equipment that libraries need in order obtain broadband via wireless is costly. By adding wireless services as eligible for E-Rate funding, libraries will be able to take advantage of discounts that can make the necessary equipment and services affordable. In addition, the Commission should provide incentives to telecommunication providers for extending into regions that do not currently have broadband access.

7. Sailor would like to provide new and innovative services to libraries throughout the State, including virtual reference services, digitized and multimedia content, videoconferencing, shared distant learning classes in cooperation with local school systems, electronic texts and more. But many of these services require increased bandwidth. Broadband is the future of advanced services, and is a necessary investment for libraries. Broadband is not a frill; it is a basic tool every public library must have for its customers. E-Rate support for broadband services would bring greater benefits to library constituents everywhere.

8. Verification

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief, and that this declaration was executed on April 4, 2002, in Baltimore, Maryland.

Patricia Wallace

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Exhibit D

***The Vital Role of Public Libraries in America and Subsequent Need for a Unique Methodology for Determining E-Rate Discounts for Public Libraries: a White Paper*, GeoLib Program/Florida Resources and Environmental Analysis Center Florida State University in collaboration with the American Library Association, Dr. Christine M. Koontz, Dean J. Jue and Stephen K. Hodge**

The Vital Role of Public Libraries in America and Subsequent Need for a Unique Methodology for Determining E-Rate Discounts for Public Libraries: a White Paper

GeoLibProgram/Florida Resources and Environmental Analysis Center
Florida State University

Dr. Christine M. Koontz, Dean K. Jue and Stephen K. Hodge

April 5, 2002

ABSTRACT

In order to assure that the maximum number of people living in poverty have access to burgeoning telecommunications services, schools and libraries must be equitably positioned to receive federal discounts. The current E-Rate Program offers discounts of 20% to 90% on telecommunications services, Internet access and internal building wiring to schools and libraries serving areas of poverty. Poverty is currently assessed by the number of students within a school district who participate in the National School Lunch Program. This criteria can negatively impact adults or those individuals not in school, that live in poverty, who could access public library services, as obviously there is no mechanism to identify these populations through the NSLP levels. The GeoLib Program at Florida State University in collaboration with the American Library Association proposes a unique methodology for determining E-Rate discounts for public libraries which includes: (1) accurately identifying all public library locations (and schools) serving areas of poverty; (2) calculation of poverty rates within increments of .5 to 1 mile around each library outlet; (3) use of geographic information system (GIS) to maintain and update this database of library and school locations and poverty statistics from the U.S. Bureau of the Census; and finally, (4) other alternative methods of calculating discount rates for public libraries that which can not be identified through the suggested radii approach.

The Vital Role of Public Libraries in America and Subsequent Need for a Unique Methodology for Determining E-Rate Discounts for Public Libraries

I. BACKGROUND

As part of the Telecommunications Act of 1996, Congress directed the FCC to extend the traditional concept of universal service beyond high cost and low-income areas, and encompass schools and libraries. The FCC did so, establishing a mechanism by which school and libraries can receive discount rates for certain services, under a mechanism known as the "E-Rate." Discounts of 20 to 90% are made available to schools and libraries on telecommunications services, Internet access, and internal building wiring. The deepest discounts are for schools and libraries serving areas with the highest poverty levels. At lower poverty levels, there is also a slightly deeper discount for those schools and libraries in rural areas. In 1997, the FCC ultimately chose to use the number of students within a school district who participate in the National School Lunch Program (NSLP) as the criterion for determining the discount rate for which both schools *and* libraries would be eligible.

Since the E-Rate Program's inception in 1996, the American Library Association (ALA) remains the primary library advocate, diligently working to ensure equitable distribution of E-Rate funds to low income public library users, as well as monitoring the success of the Program from a library standpoint. From the very beginning, ALA expressed concerns about the inadequacy of the NSLP in representing poverty levels within the total population of a library's users. An important and highly illustrative example of why the NSLP is inadequate for libraries is reflected in the current approach's inability to identify vulnerable adults with no children, who have limited access to telecommunications and advanced services. This is further explained in Section II.2.

As part of its library advocacy, the ALA and its Office of Information Technology Policy (ALA/OITP) requested the GeoLib Program at Florida State University to investigate an alternative approach that could be used to establish the discount rates for public libraries more equitably than the current method. The initial approach identified libraries residing in areas of poverty, and examined poverty levels within a one or two-mile radius of each library outlet. As part of the research in developing ALA's recommended library alternative for telecommunications discount rates, GeoLib, in 1997, developed what is called the Poverty Database, accessible on the web at http://www.ala.org/oitp/telcom/poverty.html.

While ALA's recommended approach was widely applauded within the library profession, the FCC denied it in favor of using NSLP statistics for determining the telecommunications discount rate for both schools and libraries.

In 2002, the opportunity is presented once again to provide input on improvement to the existing E-Rate Program. During the past several years, ALA has monitored the Program, and identified significant ways that the existing Program can be improved to more equitably meet the goals of the original Telecommunications Act. These include among others: 1) more accurate identification of the physical library location and the proximate library user population living in poverty; 2) subsequently, better ability to accurately identify the most appropriate telecommunications discount rate for that outlet population; and 3) finally, through greater accuracy described in the two previous points-- better monitoring and evaluation of the efficacy of the discount rates in making a difference at an individual library outlet level.

With the goal of equity of distribution of E-Rate funds to school *and* library populations, the GeoLib Program at Florida State University, under contract and collaboration with ALA staff, authors this white paper to discuss and address: 1) the vital role of America's public libraries and

the subsequent need for a methodology for determining E-Rate discount rates for public libraries that is distinct from schools; 2) documentation of problems with the existing E-Rate application process from the perspective of public libraries, with recommended improvements; and 3) the identification and consideration of an ALA-endorsed approach to determining the telecommunications discount rate for public library outlets that would be more consistent with relevant library research on this issue.

II. THE VITAL ROLE OF PUBLIC LIBRARIES IN AMERICA DEMANDS THE CREATION OF A UNIQUE METHODOLOGY FOR DETERMINING E-RATE DISCOUNTS FOR PUBLIC LIBRARIES

School and libraries are similar in that both provide an environment in which to learn, whether it is a structured environment (schools) or an unstructured one (libraries). Beyond that, however, there are more differences than similarities between the people who use schools and libraries. These differences mean that these two institutions serve largely different populations in poverty, and that the use of one measure for determining telecommunication discount rate for both institutional types is a disservice to at least one of them. At present it is the library community that is not optimally served, for aforementioned reasons. This section of the report discusses the unique and vital role of public libraries in our society and how that role should shape the E-Rate discounts for public libraries.

1. Review of the Role of the Public Library for Individuals in Poverty

In the early years, public libraries were housed in monumental buildings and usually placed in elite neighborhoods that were not convenient to all citizens. By the turn of the previous century, due to citizens' complaints, accessibility was becoming a more important criterion. Hence, library branches were built, creating broader access to more people in various income

groups. In the early 1900s, the only 'poor people' documented in library literature to be motivated to overcome class and cultural boundaries of library use, were European immigrants.

For the next fifty years, the library was still mostly placed where the readers were. It was not till the upheaval of the Sixties that there was a major effort by the library profession to reach out to those who could, would, or did not come to the library. Library services were seriously scrutinized for equity by the profession. When inequities were identified, traditional library services began diversifying. Kiosks of books were placed in shopping malls, housing projects and storefront libraries were opened. Dozens of publications, guides and reports were issued by educators, library leaders and associations regarding service provision to low income and minority groups (Koontz, 1997).

At the turn of this century—the library--as place--is once again emerging as an important issue for assuring equitable physical access to the Internet (Jue et al, 1999). Public libraries remain a premiere agency for insuring equitable information access. Equitable access is important because it is substantially lower in most low income populations as well as in minority populations. In 2001, America leads the world in Internet access, with an estimated 42% of the population connected to the web. This compares to 18% in the year 2000. With the current E-Rate Program, school children represent the greatest growth in access, reported to have almost 100% access in 2001 via schools and academic settings. While this number is striking in its success, it does not reflect access by the vulnerable *adult* populations in poverty. The public library serves as the last safety net of available information for people living marginally in our society.

The library as a place for accessing computerized information is emerging as an important resource for lower income communities and those in poverty who cannot afford a

computer and the associated telecommunications charges at home. Internet access can continue to grow by utilizing America's public libraries as Internet access points for impoverished adult Americans not in school settings. An estimated 8,000 public library outlets serve rural remote areas, and an unidentified number of libraries serve extreme pockets of poverty in urban and suburban areas.[1] The public library now more than ever can be a vital link in America's information dissemination system expanding to meet new concerns and new markets of information needs.

2. Key Differences Between Schools and Public Libraries

There are at least three key differences between schools and public libraries in how they serve individuals in poverty. These differences are:

(1) Physical facility elementary schools are legally mandated by all levels of governments for school age children, while public library facilities are not legally mandated, and serve all ages.

(2) Individual schools serve students from a legally-defined service area (often county-wide districts), whereas individual library outlets often serve users from undefined areas surrounding the outlet.

(3) School-age individuals in poverty are required by law to attend schools, and adults in poverty may choose or not choose to access public library services

These three differences form the basis for why public libraries must have a different methodology for identifying what is an appropriate telecommunications discount rate. Two specific scenarios where the NSLP data would be inappropriate for determining discount rate for a library would include:

[1] The U.S. Census 2000 data which identifies poverty levels in urban and rural areas will be distributed in late Fall 2002. Any figures extrapolated at this time would be unreliable as these would be based upon 1990 U.S. Census data.

(1) a library outlet in a school district with low poverty levels among school-age children but with high numbers of the adults living at or close to the poverty line; and

(2) a library outlet in a middle-class school district, that is actually serving adults living in poverty.

Most branch libraries do not have a defined geographic market. Until this past decade, there was a reliance on system-wide data and geography. For example, a county system may have 14 branches, but each branch does not have an identified geographic market. Library management then, may not have a precise understanding of what percentage of users reside in poverty, or do not. Therefore, if an alternative methodology for determining telecommunications discount rate for library is to be practical, it is critical to develop methodology that determines where individuals in poverty come from, and which particular public library these individuals access. In summary, the extent of poverty in the area being served by each individual library outlet must be determined. This paper seeks to outline how that can be done.

3. Location of Public Library Outlets Relative to Individuals in Poverty

The physical location of libraries serving populations in poverty is critical as distance affects the library use of low income people more than other factors. Libraries serving areas of poverty must often be within 'stumbling' distance to overcome an individual's lack of knowledge of library services and lack of the reading and library habit, as well as an individual's priorities (i.e., food and shelter, over information, even though the latter may lead to greater opportunity for these basics).

There is a wealth of library research that indicates that the geographic area from which an individual in poverty will travel to go to a library is fairly small. Conclusions that can be drawn from this research include:

(1) Lower income people tend to use the nearest outlet;

(2) Use of the library decreases in low income populations because those individuals have other and more pressing needs than library usage. Those populations are also more affected by distance than high income groups (Van House, 1983).

(3) In-library use decreases when low-income groups must pay for travel or expend greater travel time for library use (Obokoh & Arokoyu, 1991);

(4) Use decreases as distance from a library facility increases (Palmer, 1981);

(5) Densely populated ethnic communities resist travel outside their immediate shopping community for library and other services (Hayes and Palmer, 1983);

(6) Lack of transportation is an important factor in non-use (D'Elia , 1980; Gallup International, Inc., 1976);

(7) Juvenile use diminishes outside of a one-mile radius due to transportation mode (Hayes and Palmer, 1983);

(8) Traditional service inputs and outputs are usually lower in majority-minority markets due to location, poor quality of materials and service and unmet needs of users (International Research Associates, 1963; Koontz, 1990; 1992.)

Any and all of the above factors affect the distance from which a low income individual will travel to utilize Internet services at a public library.

III. AN ALTERNATIVE APPROACH FOR CALCULATING E-RATE DISCOUNTS FOR PUBLIC LIBRARIES

When the Telecommunications Act of 1996 was passed, GeoLib developed an approach for calculating telecommunications discount rates for public libraries with the guidance of the ALA. As already noted, the FCC rejected this approach. Part of the reason for the rejection can be attributed to the lack of timeliness of the data available at that time. Unlike school districts, which have a federally mandated data collection system on a regular basis, public libraries had no comparable databases that were disaggregated to the outlet level. Also, the latest poverty data for public libraries that could be utilized would have been from the 1990 U.S. Census. Relative to NSLP data, the Census data was clearly dated.

During the ensuing years, several events have occurred which directly address and correct the concerns that the FCC had with the original ALA proposal for calculating telecommunications discount rates for public libraries. In addition, the experiences over the past few years of the Program convinced ALA more than ever that an alternative method for calculating E-Rate discounts must be made available for public libraries for assured equity of E-Rate fund distribution to impoverished children and adults alike.

ALA requested the GeoLib Program at Florida State University to develop a detailed description of a valid, accurate, and defensible methodology to calculate poverty rates for any given public library outlet in the U.S. and, from those calculations, to assign a pre-determined telecommunications discount rate for that outlet. The remainder of this white paper describes the components and operations of that methodology in greater detail.

1. Goals of the Methodology

In order to be a valid approach, the methodology must meet the follow criteria:

(1) contain accurate, up-to-date data on all public library outlet locations;

(2) utilize up-to-date statistics on local poverty and associated socioeconomic data;

(3) utilize scientifically defensible methods for determining the poverty rates in the market area that is identified for each public library outlet;

(4) be capable of being maintained and updated over time as new data become available; and

(5) be acceptable by library professionals as a reasonable, reproducible, and defensible methodology for calculating poverty rates for a public library outlet.

2. Components of the Methodology

There are four major components that will comprise the overall system used to determine poverty levels near any particular library outlet. These components are: 1) a geographic

information system, 2) a national digital base map of all public library outlets in the U.S., 3) a database of poverty statistics from the U.S. Bureau of the Census, and 4) a national digital base map of all school outlets in the U.S. Each of these components will be now be described in greater detail along with the role they would play in overall methodology.

Geographic Information System (GIS)

The geographic information system is computer software that is available from a number of different vendors (e.g., Environmental Systems Research Institute, MapInfo, Intergraph). While GIS can and does work with traditional data, the power of GIS comes from working with geographic or spatial data. That is, data that can be referenced to a particular point on the Earth's surface. This referencing can be done with poverty data because areas of poverty are in certain locations (*e.g.*, in certain census blocks). Data such as public library outlets and schools can also be referenced to specific points on the Earth because they have a physical location (*i.e.*, a latitude/longitude point).

When spatial data are incorporated into a GIS, those data sets can then be utilized for analysis just as with any other computer software. In this particular instance, the analyses are spatial in nature as much as numeric in nature. For example, with the appropriate data sets, GIS can easily be used to answer questions such as:

(1) How many people in poverty reside within one mile of the library outlet? Within one-half mile?

(2) Which school is the closest one to a particular library outlet, regardless of the school district in which the library outlet actually resides?

(3) What topographical and cultural barriers are present that further delimit library use?

National Digital Base Map of Public Library Outlets

In 1997, there was a database inventory of all public library outlets throughout the U.S. This inventory was not available in a GIS form, however. While it was possible to generate a map of initial library locations utilizing the inventory, such a map would still need to be checked and verified. Even if up-to-date census statistics on poverty had been available in 1997, it would have been impossible to determine the poverty level surrounding a particular outlet because the location of the outlet on the GIS map could have been off by several if not tens of miles.

As of April 2002, there is now an accurate digital base map of public library outlets in the U.S. This map was developed by the GeoLib Program within Florida State University and includes the 16,167 public library outlets that existed in the U.S. in 1999. Bookmobiles were not included as part of this map. The term "base map" is used to refer to a map of known and verifiable accuracy level onto which other geographic data can then be compared, such as census data.

There are three levels of accuracy for this digital base map. Approximately 10,000 of the public library outlets could be geocoded (i.e., assigned an accurate latitude/longitude) based on their standardized street address. That is, the name of their street could be found in a nationwide street database and the number portion of their address fitted within the address range for one of their street segments in the nationwide street database. If all this was true, then an accurate location for the outlet could be obtained by interpolating the latitude/longitude values for the street segments in the nationwide street database. The location for an additional 2,000 libraries was obtained from additional research (e.g., obtaining street address instead of a post office box number for a library and then re-geocoding). The remaining libraries were called and an accurate location determined from a discussion with a librarian, employee, or volunteer at each particular

branch. With the exception of a very few libraries which are in extremely remote and rural areas with no crossroads, all public library outlets in this digital base map should be accurate to within one-quarter of a mile, with many accurate to within one hundred feet.

An accurate map of public library locations is a prerequisite for any methodology that requires information about poverty surrounding a particular library location. This requirement has now been met by GeoLib's recently developed nationwide digital base map of libraries.

U.S Census Poverty Data

Unlike schools, which regularly surveys their service areas for eligibility for the school lunch program, public libraries are dependent on other sources for their poverty statistics. In 1997, the best nationally available data source was still the 1990 census data.

Now, the 2000 U.S. Census has recently been completed and the poverty statistics from that census should be available in the summer of 2002. For the first time in over a decade, recent poverty statistics surrounding each library outlet will soon be available. In addition, other socioeconomic and demographic information that may be used in calculating some of the statistics that ALA believes is necessary setting a telecommunications discount rate will be available as well (e.g., number of households with no children).

Even more importantly, the U.S. Census Bureau is starting up the American Community Survey (ACS). This survey will be fully implemented in 2003 and provide estimates of demographic, housing, social, and economic characteristics every year for all states, as well as for all cities, counties, metropolitan areas, and population groups of 65,000 people or more. For areas with smaller populations, it will take five years to accumulate a sample similar to the decennial census.

With the ACS becoming available within a year, there is finally the opportunity to have up-to-date and consistent economic data across the entire U.S. that is not dependent solely on school-age children but that takes into account all age groups. It is this type of population data that will accurately reflect the target audience for poverty that America's public libraries serve.

National Digital Base Map of Schools

It is agreed by school and library policymakers that school-age children living in poverty are the primary target group, and must be prioritized for E-Rate funds in order for the Program to have long-term impacts. Library research indicates that if the reading and library habit is not developed as a child, adult library use and reading is less likely. The goal of GeoLib is to develop a database that best meets the needs of this primary group, and assures optimal distribution of E-Rate funds for betterment of all ages.

There are over 95,000 public schools in the U.S. in the 1999 – 2000 school year report. The location of these schools can be incorporated into the proposed ALA methodology either through geocoding or through other sources that have already completed such a procedure (e.g., through the U.S. Department of Education or through a private data vendor). These locations of schools will be a data layer, which can reside digitally alongside the completed basemap of 16,100 public library locations, offering dynamic information regarding children living in poverty. Although all public libraries have unique missions and the vast majority is completely independent of school districts, there are only a few hundred public libraries which have legal service areas that coincide exactly with that of school districts.

For those reasons, the ALA agrees that the locations of schools relative to a public library outlet are an important factor that needs to be considered in the allocation of telecommunications discount rates.

3. *Use of the Components to Calculate a Library's Discount Rate*

Incorporating the four above components into an overall system will permit public libraries to have an alternative methodology for calculating an E-Rate discount rate that will be reproducible, defensible, and yet simple. The following discussion provides some suggested methods for using the various components.

(a) Poverty Calculations

As discussed above, people in poverty have smaller distances from which they are willing and able to travel to go to a library. This is also one of the reasons why it often makes no sense to look at the overall poverty within the much larger service area of an entire library system.

In the original ALA proposal of 1997, GeoLib calculated poverty rates in urban areas with a one-mile radius around each outlet and a two-mile radius in rural areas. With the enhanced accuracy of the national digital base map of library outlets, GeoLib would actually recommend utilizing a smaller .5 mile and 1 mile radius around library outlets. Larger radii may be utilized in situations of extended rural nature. The smaller radii is much more in line with research on the likely maximum travel distance for individuals in low-income or poverty areas.

Because of the much more fluid nature of public libraries serving populations in poverty, it also may not benefit to have such a fine gradation in the categories of poverty as seen in the NSLP Programs in schools. This coarser distinction can be seen in the U.S. Census Bureau's definitions of poverty, which only has the three categories of low poverty (less than 20% poverty), high poverty (20 to 40% poverty), or extremely high poverty (greater than 40% poverty).

(b) Using the Poverty Calculations

Once the poverty rate is calculated for an outlet, a library outlet could simply refer to a table to determine the telecommunications discount rate for which it would be eligible given the degree of poverty around its outlet.

(c) Alternative Methods of Calculating Discount Rates for Public Libraries

Although determining the poverty rate using the U.S. Census data for an area within a given radius of an outlet would work well for most libraries, it may be anticipated that there are certain situations for which the radius method may not work. Using the components described above, other ways that the telecommunications discount rates could be calculated for libraries include:

(1) a library could utilize the same discount rate as the school that is closest to the library outlet itself;

(2) a library could utilize the average discount of the nearest elementary and secondary school that is closest to the outlet; or

(3) a library could utilize the poverty rate found within its entity's entire legal service area (perhaps especially useful for rural western counties);

(4) libraries could submit their own 'customer market analysis,' utilizing service area population data, and library use/services data that identifies a customer market profile of poverty. Examples of libraries that might serve poverty areas not reflected in the radii approach include bookmobile service to a more rural area, or an urban library offering outreach service to a housing project which is almost 100% poverty population, (located outside of the ascribed radii).

The alternative methods discussed are meant to reinforce the point that alternatives to school lunch program data are necessary if the full user environment of public libraries are to be incorporated into calculating an E-Rate discount rate. These alternatives could be made available in the initial application or through an appeals process.

4. Implementation Schedule

It should be possible to fully implement the above methodology within six months of its approval, assuming that the U.S. Census Bureau data on poverty is available (due to be released in summer of 2002).

IV. DATA TABLE ISSUES WITH THE E-RATE DATA FROM A LIBRARY STANDPOINT

This section addresses some data issues that were encountered by GeoLib while analyzing the E-Rate database supplied by the Universal Administrative Company (USAC). These are not issues of how the data is managed internally by USAC, but rather problems and issues that resulted when their data was extracted from its native environment and delivered for analysis to an outside party interested specifically in public libraries.

The process of requesting E-Rate funds can be quite lengthy in many cases. When a decision is made to coordinate the application process within a state, there can be many rounds of meetings to decide which groups will be involved. Will it be just libraries within a county? Will a group of counties coordinate together? Will the state library system coordinate for the entire state? Will a school system be involved? Will a library join with a group of schools? Once an application strategy is adopted and submitted, separate applications for the funding of services begins. Again, there are a number of different strategies that can be followed.

Thus, E-Rate funding requests can take a considerable amount of time and resources to implement. Added to this timeline is the time it takes for the applications to be reviewed and accepted at the national level. This elongated timeline can lead to inaccuracies or misleading analysis when snapshot copies of the E-Rate database are extracted and analyzed. There are status codes to help the researcher know where in the process a particular request is, but they are

not always easy to use when overall analysis is needed. For example, if an entire state library system was applying together and their application was sent in near the funding year deadline, and delays are encountered due to technical problems with the paperwork, an analytical look early in the funding year will give a very different picture, than one several months later.

The most needed attribute information from a library standpoint that is missing from the E-Rate database is the Federal State Cooperative System (FSCS) code for library applicants. Without this code, the E-Rate data cannot easily be linked to other nationwide library databases that are keyed to this code. The addition of this one attribute field would allow researchers to tap into a wealth of library and ultimately, other associated demographic data that has become available with the 2000 U.S. Census data.

The discount rate application allows applicants to categorize their application by what type of organization(s) are applying. The choices are: School, District, Library, and SLC Consortium. This means that a library can either apply by itself or as part of a consortium. A consortium may involve one, a hundred, or all the libraries within a state. If a researcher is attempting to analyze only libraries, this presents a problem. There is no way to easily know the extent of library (or for that matter school's) participation in the consortium applications. This could be addressed by expansion of the application (and thus the database) to include some method of tracking application participants, but it is suspected that at least one of the reasons consortiums are used, is to reduce the amount of paperwork and the number of people having to know *how* to participate in the Program.

Consequently, it is difficult for researchers to analyze the number of funding requests that an individual state may generate. For example, one state could make one funding request for a large number of libraries while another state may decide that each library must make requests on

their own. The libraries in both states may be equally successful in acquiring E-Rate funding, but it is difficult to tell how many library entities and outlets are affected. For the same reasons, in multi-outlet library entity applications, it is difficult to determine how many library outlets were affected.

USAC maintains a very complex Microsoft Access database to manage the E-Rate discount applications. When a request is made by an outside party for part of that data, it is not always a simple matter of extracting a few tables, putting these on a CD and delivering the data to a client. Many tables have complex linkages to other tables, and ignoring these connections can result in the researcher drawing wrong conclusions based on erroneous data.

Finally, without a researcher having a method for acquiring a thorough understanding of how the E-Rate database is constructed, it is difficult to know what kind of questions can be asked and answered accurately. It may be easy to evaluate the application forms and know the procedures for applying for E-Rate services and formulate questions and hypotheses, but without knowing how the applications are stored and processes in the databases, it is difficult to know if accurate evaluations can in fact even be extracted.

V. CONCLUSION

At the beginning of this new millennium, the American public library is emerging as the premiere public agency for insuring equitable information access. There are an estimated 16,000 public library outlets nationwide, 8,000 serving rural remote areas. Equitable access is only possible if the public libraries serving poverty populations are well-funded and well-positioned as the last safety net of information for people living marginally in American society. America leads the world in Internet access, with an estimated 42% of the population connected to the web. While it is widely applauded (and should be) that currently almost 100% of school children have

Internet access, the current E-Rate process does not ensure that vulnerable adult populations are optimally served.

In 2002, the data deficiencies that existed in 1997 for determining poverty around library outlets can be overcome, by integrating existing research on library outlet market areas, especially for individuals in poverty, and with recently developed databases in geographic information system environments. The alternative and unique methodology proposed in this paper for determining E-Rate discounts for public libraries will ensure America's libraries remain a critical resource for those in poverty, who cannot afford a computer and the associated telecommunications charges at home.

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